

***Chaetosphaeria ellisii* (Barr) Huhndorf & F.A. Fernandez – AEB 973 = PDD 92315**

See Huhndorf, S.M. and Fernández, F.A. 2005. Teleomorph-anamorph connections: *Chaetosphaeria raciborskii* and related species, and their *Craspedodidymum*-like anamorphs. Fungal Diversity 19: 23–49.

Substrate: wet but firm, downed, decorticated, dead tree trunk

Collection site: Battle Hill Farm Forest Park – located on the Paekakariki Hill Road 6 km from State Highway 58 at Pauatahanui. It contains a remnant of the original kohekohe forest with tawa, pukatea and kahikatea.

Collection date: 27 November 2006

Collector & Identifier: Dan Mahoney

Voucher materials: dried herbarium specimen (AEB 973 = PDD 92315) accompanied by 2 Shear's mounting fluid (SMF) microscope slides; Dan's scanned colored projection slides (dissecting and compound microscope views); Dan's description.

Description: **Perithecia** numerous, superficial, globular to broadly ovoid (not collapsing when dried), separate to aggregated, glistening blackish with short rigid dark setae scattered over the peridial surface; often seen with numerous discharged white ascospores scattered on the peridial surfaces and later with white masses of ascospores exuded above the ostioles; younger, smaller perithecia (containing paraphyses but no asci) with more obvious setae – setae becoming less obvious with enlargement of the perithecium (with the same number of setae now covering a greater surface area). **Peridium** several layered; the **outer layer** composed of moderate-sized, thin-walled, light brown globular cells (this layer much thinner than similar layers in the *Chaetosphaeria rubicunda*-like and *C. raciborskii* specimens that I've observed earlier in Minnesota and NZ. Also no purplish pigments, mentioned by Huhndorf & Fernandez, were observed.); the **inner layer** composed of a brownish textura intricata, very compressed and more colorless at its innermost edge. **Setae** arising from the inner peridial layer, dark brown, simple, thick-walled and rigid, straight or nearly so, smooth, once septate near the base (this not visible in most because of the dark pigmentation), tapering from a slight swelling above the constricted base to a pointed apex; to 40 µm long × 7 µm at the widest. **Periphyses** lining the smallish ostioles. **Paraphyses** numerous, extending slightly above the asci, hyaline, smooth, septate, simple, roughly the same diameter throughout, mostly 3–5 µm wide (perhaps slightly narrower near the rounded apices). **Asci** long cylindrical, relatively short-stalked, containing 8 roughly triseriately arranged, scolecosporous ascospores; apical ring nonamyloid, conspicuous and roughly 2.5 µm wide × 2.5 µm deep. **Ascospores** hyaline, smooth, with numerous guttules which make the 7 thin-walled, equally distant, transverse septa difficult to see clearly (the medium septum most obvious and it sometimes very slightly invaginated), straight in some views and slightly curving in others, rounded at the ends but somewhat narrower basally, 62.5–77.5 × 4 µm (n=10). Attempts to better show off the septa by mounting in aniline blue lactic acid, Melzer's or fuchsin lactic acid gave no better results (if as good) as mounts in SMF (heated or not) or water. **No anamorph observed.**

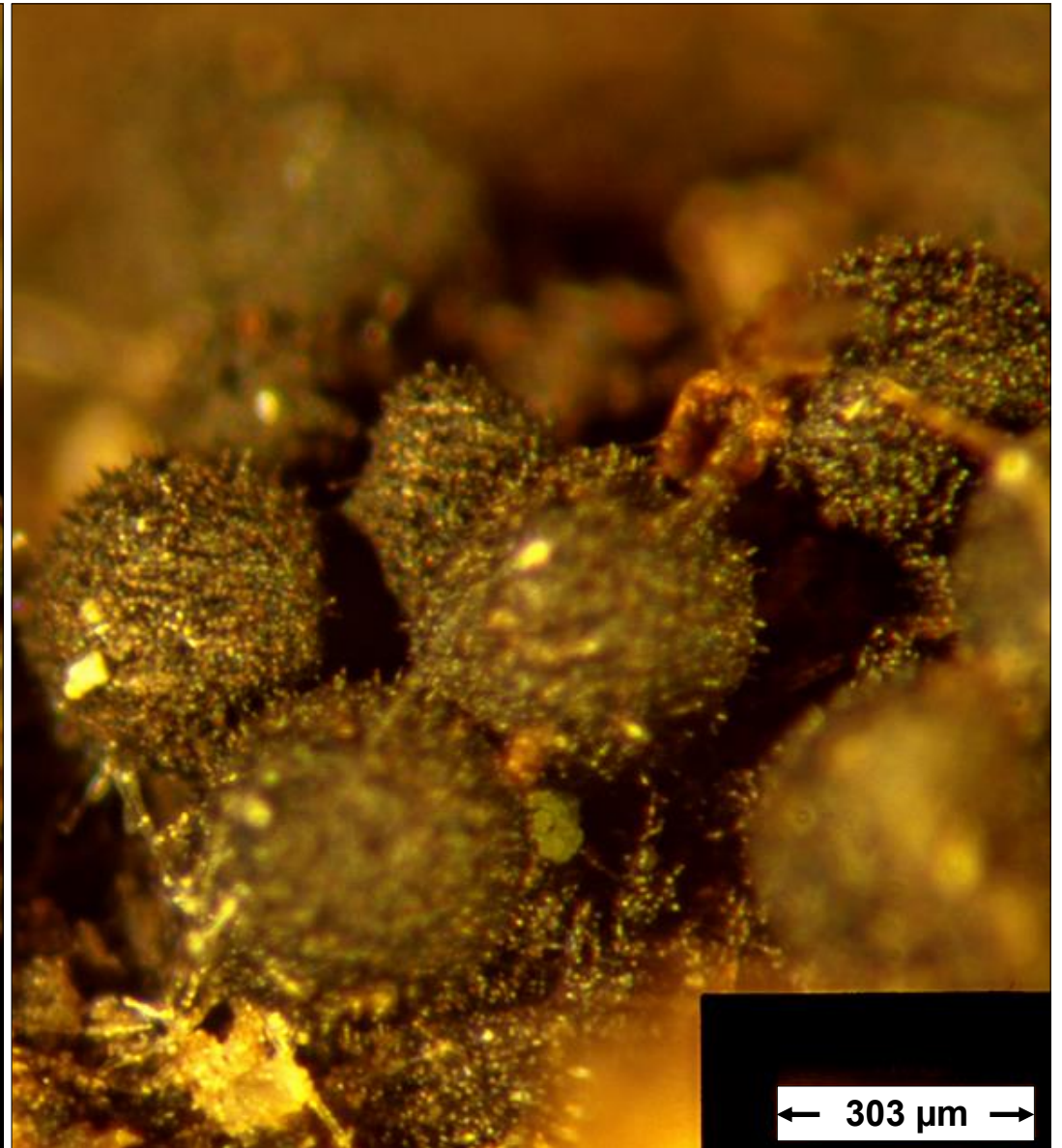
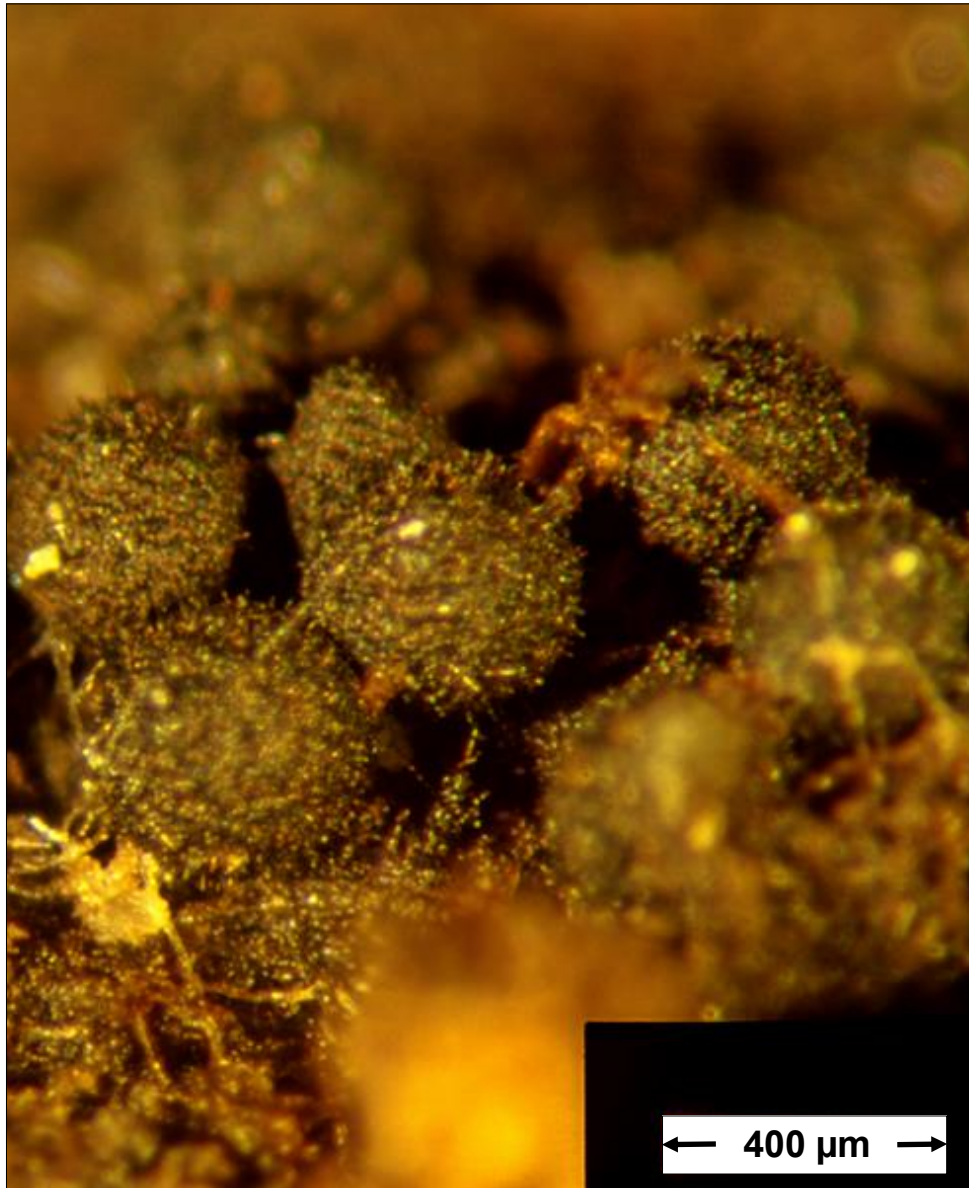
Teleomorph description from Huhndorf, S.M. and Fernández, F.A. 2005. reproduced below

Chaetosphaeria ellisii (Barr) Huhndorf & F.A. Fernández, **comb. nov.**

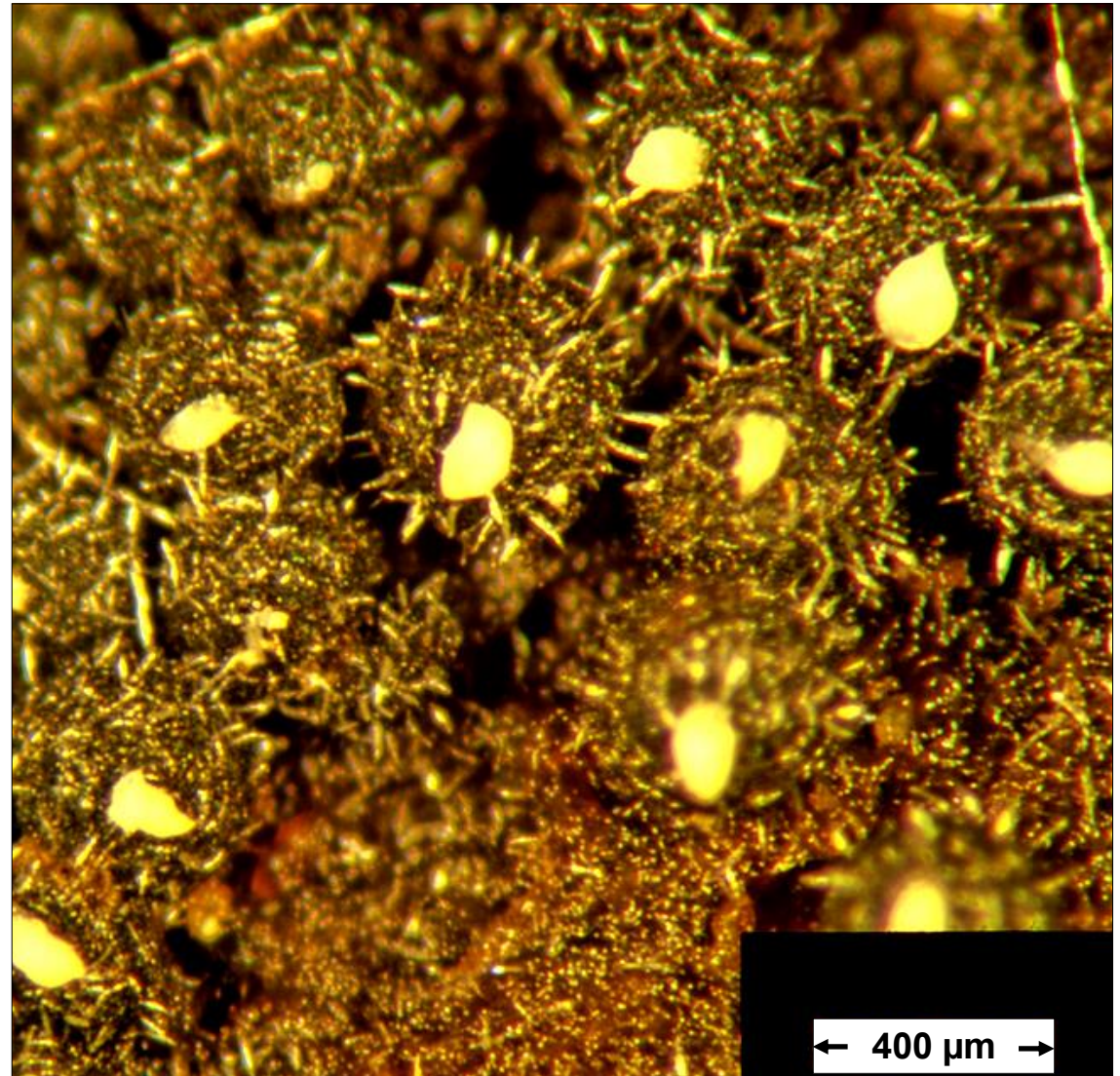
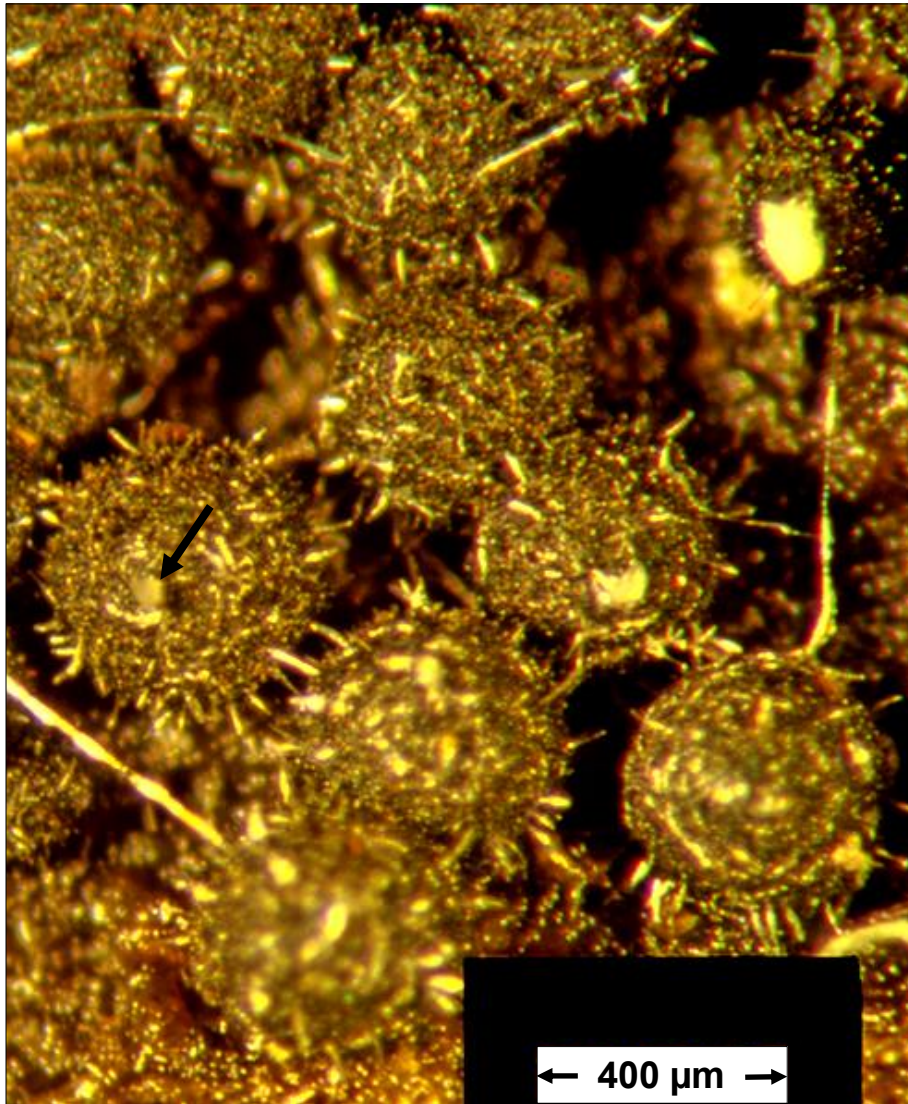
≡ *Lasiosphaeria ellisii* Barr, Mycotaxon 46: 48. 1993. (Basionym)

≡ *Sphaeria longispora* Ellis, non Currey, nec Karsten (see Barr 1993 for additional synonymies).

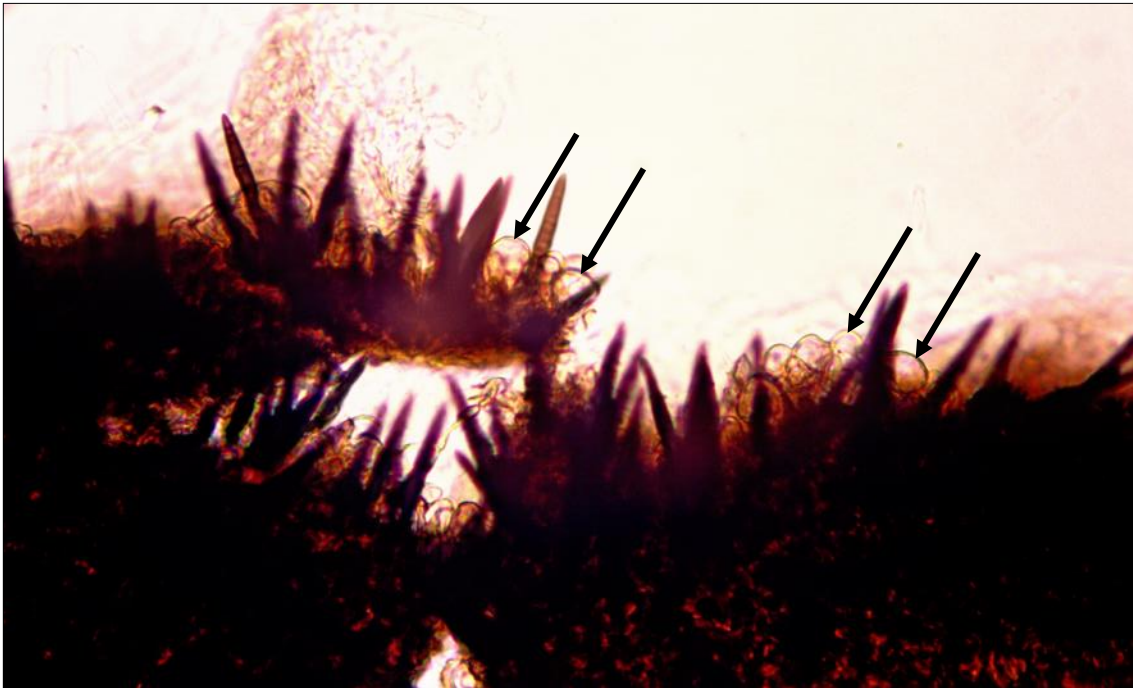
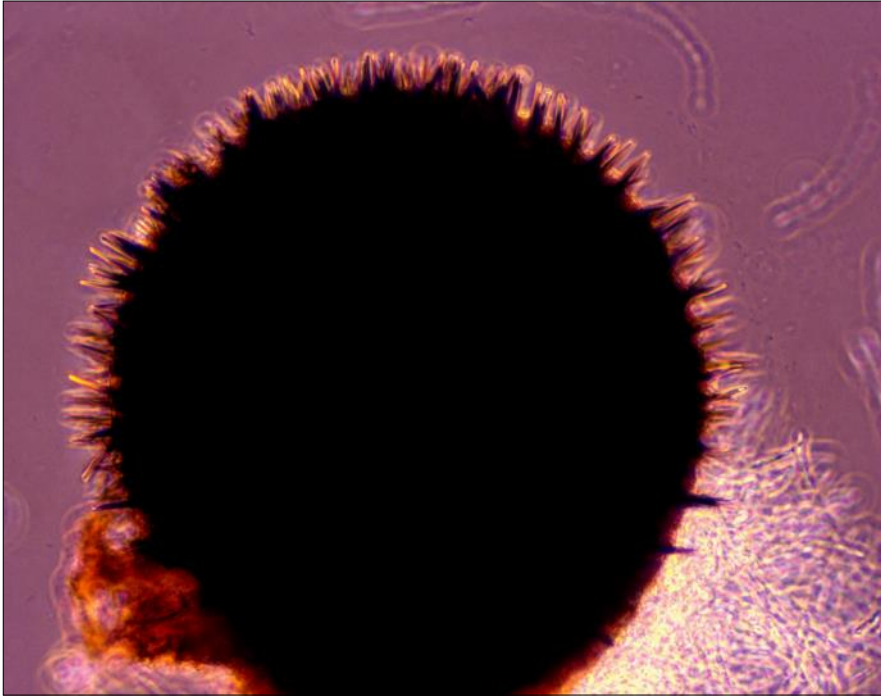
Ascomata scattered or clustered, numerous, superficial, globose to ovoid, not collapsing, roughened, with reddish, russet or brown surface colour, (130–)150–300(–375) µm diam., 150–325(–420) µm high, papillate. **Setae** scattered over entire ascoma, brown, stiff, pointed, arising from the inner layer of small brown cells, long, 20–45 µm, sparse or abundant. **Ascomatal wall** of **textura globosa** in surface view; in longitudinal section uniformly 36–110 µm thick; 2-layered, inner wall layer 15–19 µm thick, up to 60 µm thick at base, composed of small (4 × 8 µm), polygonal-to-elongate, pale-to-dark brown, pseudoparenchymatic cells, 4–6 cells thick, setae arising from this wall layer; outer wall layer 34–51 µm thick, composed of large (15–30 × 27–37 µm), isodiametric-to-polygonal, pale brown, pseudoparenchymatic cells, 5–20 cells thick, when fresh some of the cells contain pale purple pigment, disappearing when dried. **Papilla** conical, 58–60 µm high, 14–17 µm wide at the apex, 43–49 µm wide at the base; circular ostiole 15–27 µm wide, with periphyses. **Paraphyses** 3–4 µm wide, numerous, septate, tapering toward apex. **Asci** 162–180 × 10–15 µm, numerous, arising from basal hymenium, cylindrical, rounded apex, with refractive apical ring, short-stalked, unitunicate, with 8, triseriate, ascospores. **Ascospores** (40–)50–75(–80) × 3–4.5 µm, filiform, with apical end broadly rounded, basal end narrowly rounded, straight to slightly curved, hyaline, smooth, 7-septate, without constrictions, primary septum median, slightly bipolarly asymmetrical, without sheath or appendages.



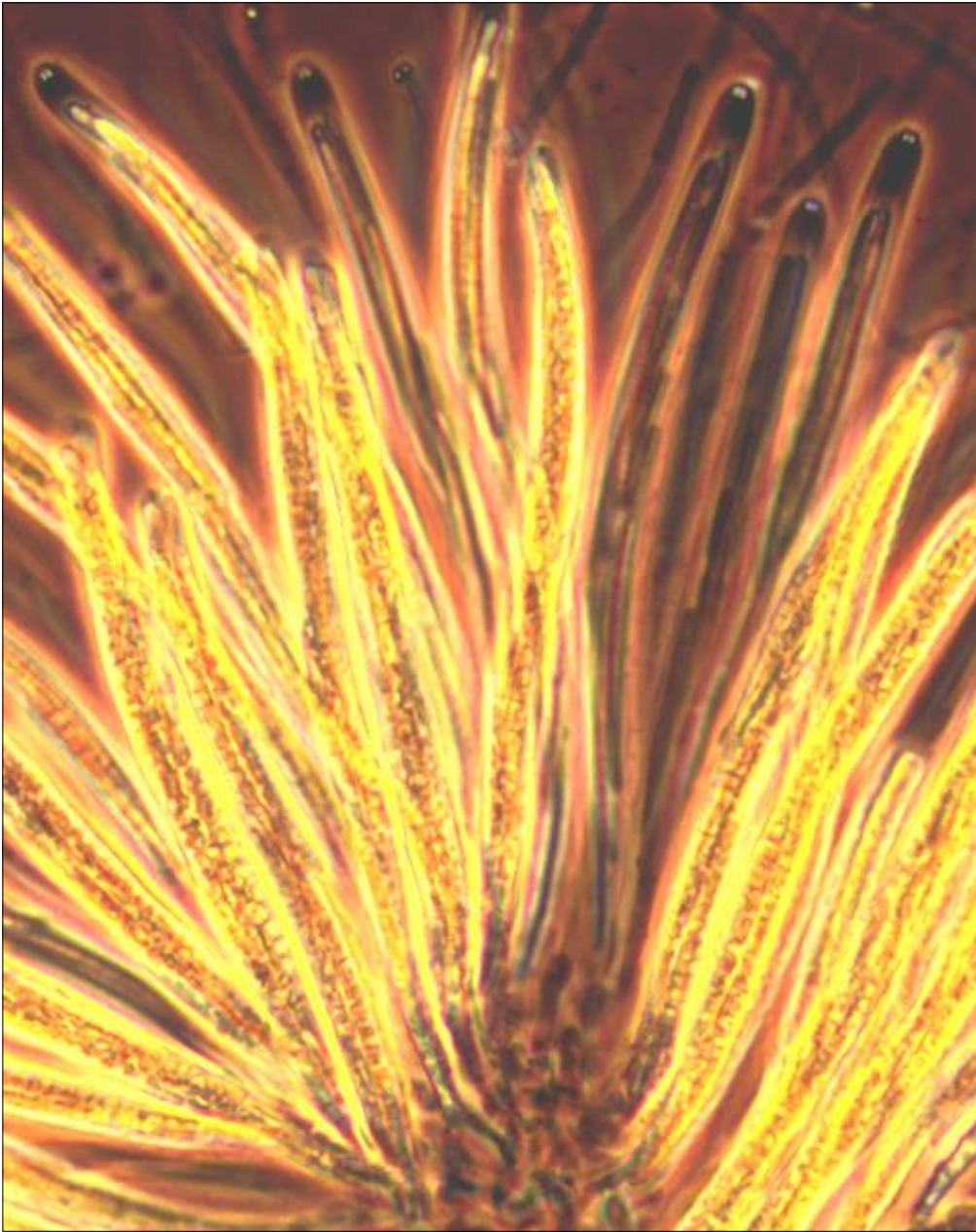
Chaetosphaeria ellisii AEB 973. In-situ side views of fresh ascomata on the dead wood substrate. Note the short rigid setae scattered over the ascomata..



***Chaetosphaeria ellisii* AEB 973. In-situ bird's eye views of fresh ascomata on the dead wood substrate. The rigid setae are better developed here than those seen on the previous page. The left photo was taken several hours before the right photo from the same area of ascomata. Note that its ascomata are just beginning to exude ascospores from their ostioles (arrowed) while ascospore exudation in the right-photo ascomata has greatly increased (note the white to yellowish blobs).**



Chaetosphaeria ellisii AEB 973. Ascomata setae & globose cells of the outer peridium. Upper left photo: compound scope X20 objective view of a young ascoma mounted in 70% EtOH. Upper right photo: spines from a squash mount of the ascoma in the upper left photo, compound scope X40 objective. The squash (in 70% EtOH) of the ascoma showed 'mature-looking' spines but as yet was still developing and had no asci. Lower left photo: peridium fragment from a fresh mature ascoma, compound scope X40 objective, water mount. Note the spines and the globular cells (globular cells arrowed) of the outer peridium.



Chaetosphaeria ellisii AEB 973. Left photo: hymenial squash, water then Melzer's mount, compound scope X40 objective, phase. Right photo: similar mount, X100 obj. Note apical ring on ascus (arrowed).



***Chaetosphaeria elisii* AEB 973. As-cospore emphasis (ignore the colors; I was trying to best show the spore septa). Left photo: hymenial squash, SMF heated mount, compound scope X100 objective, brightfield. Note two 7-septate as-cospores, in ascus below its apical ring. Right photo: water mount, X100 obj. Note the 7-septate asco-spores with their broader apex, narrower base and the numerous guttules between the septa. There is a slight invagination at the middle septum (arrowed).**